WHAT IS CLAIMED IS:

1. A method for optically recording information on an optically re-writable information medium having at least one track in which method a laser light is focused to a laser spot to form a mark on said optically re-writable information medium and a size of said mark is modulated according to a level of a multi-level signal that corresponds to said information to be recorded, in said method:

a strength of said laser light for recording each mark is modulated according to a waveform comprising a first rectangular erasing pulse signal, a rectangular recording pulse signal, an off-pulse signal and a second rectangular erasing pulse signal,

said laser light having a strength set to a value indicated by said first rectangular erasing pulse signal can erase a recorded mark,

said laser light having a strength set to a value indicated by said rectangular recording

pulse signal can record a mark,

a strength of said laser light set to a value indicated by said off-pulse signal is less than a strength of said laser light used in reproduction of said recorded marks,

said laser light having a strength set to a value indicated by said second rectangular erasing pulse signal can erase said recorded mark, and

a product of the time interval of said rectangular recording pulse signal and a relative linear velocity between said laser spot and said optically re-writable information medium is shorter than a length of said recorded mark.

2. A method for optically recording information on an optically re-writable information medium as claimed in claim 1, wherein a size of said mark is modulated according to said information by means of modulating a pulse width of said off-pulse signal so that a time interval between a rising edge of said rectangular recording pulse signal and a rising edge of said rectangular erasing pulse signal

corresponds to said size of said mark.

3. A method for optically recording information on an optically re-writable information medium as claimed in claim 1, wherein said track is divided into a plurality of cells and said mark is recorded in said cell so that a center of said mark is placed at a center of said cell by means of adjusting both a rising edge of said rectangular recording pulse signal and a rising edge of said rectangular erasing pulse signal.

4. A method for optically recording information on an optically re-writable information medium as claimed in claim 2, wherein said track is divided into a plurality of cells and said mark is recorded in said cell so that a center of said mark is placed at a center of said cell by means of adjusting both said rising edge of said rectangular

recording pulse signal and said rising edge of said rectangular erasing pulse signal.

5. A method for optically recording information on an optically re-writable information medium as claimed in claim 1, wherein said size of said mark is fine-adjusted by controlling timing of a falling edge of said rectangular recording pulse signal.

6. A method for optically recording information on an optically re-writable information medium as claimed in claim 2, wherein said size of said mark is fine-adjusted by controlling timing of a falling edge of said rectangular recording pulse signal.

7. A method for optically recording information on an optically re-writable information medium as claimed in claim 3, wherein said size of said mark is fine-adjusted by controlling timing of a falling edge of said rectangular recording pulse signal.

8. A method for optically recording information on an optically re-writable information medium as claimed in claim 4, wherein said size of said mark is fine-adjusted by controlling timing of a falling edge of said rectangular recording pulse signal.

9. A method for optically recording information on an optically re-writable information medium as claimed in claim 1, wherein said size of said mark is fine-adjusted by controlling said

strength of said laser light modulated by said rectangular recording pulse signal.

10. A method for optically recording information on an optically re-writable information medium as claimed in claim 2, wherein said size of said mark is fine-adjusted by controlling said strength of said laser light modulated by said rectangular recording pulse signal.

11. A method for optically recording information on an optically re-writable information medium as claimed in claim 3 , wherein said size of said mark is fine-adjusted by controlling said strength of said laser light modulated by said rectangular recording pulse signal.

12. A method for optically recording information on an optically re-writable information medium as claimed in claim 4, wherein said size of said mark is fine-adjusted by controlling said strength of said laser light modulated by said rectangular recording pulse signal.

13. A method for optically recording information on an optically re-writable information medium as claimed in claim 5, wherein timing of a rising edge of said rectangular recording pulse signal is controlled so that a center of said mark is placed at a center of said cell.

14. A method for optically recording information on an optically re-writable information medium as claimed in claim 6, wherein timing of a rising edge of said rectangular recording pulse

signal is controlled so that a center of said mark is placed at a center of said cell.

15. A method for optically recording information on an optically re-writable information medium as claimed in claim 7, wherein timing of a rising edge of said rectangular recording pulse signal is controlled so that a center of said mark is placed at a center of said cell.

16. A method for optically recording information on an optically re-writable information medium as claimed in claim 8, wherein timing of a rising edge of said rectangular recording pulse signal is controlled so that a center of said mark is placed at a center of said cell.

17. A method for optically recording information on an optically re-writable information medium as claimed in claim 9, wherein timing of a rising edge of said rectangular recording pulse signal is controlled so that a center of said mark is placed at a center of said cell.

18. A method for optically recording information on an optically re-writable information medium as claimed in claim 10, wherein timing of a rising edge of said rectangular recording pulse signal is controlled so that a center of said mark is placed at a center of said cell.

19. A method for optically recording information on an optically re-writable information medium as claimed in claim 11, wherein timing of a rising edge of said rectangular recording pulse

signal is controlled so that a center of said mark is placed at a center of said cell.

20. A method for optically recording information on an optically re-writable information medium as claimed in claim 12, wherein timing of a rising edge of said rectangular recording pulse signal is controlled so that a center of said mark is placed at a center of said cell.

21. A method for optically recording information on an optically re-writable information medium as claimed in claim 1, wherein a relation between said length (ML) of said mark along said track and a diameter (BD) of said laser spot satisfies $ML \leqq BD$, and

a product of said pulse width of said rectangular recording pulse signal and said relative linear velocity is less than 20 % of said diameter

(BD) of said laser spot.

22. A method for optically recording information on an optically re-writable information medium as claimed in claim 2, wherein a relation between said length (ML) of said mark along said track and a diameter (BD) of said laser spot satisfies $ML \leqq BD$, and

a product of said pulse width of said rectangular recording pulse signal and said relative linear velocity is less than 20 % of said diameter (BD) of said laser spot.

23. A method for optically recording information on an optically re-writable information medium as claimed in claim 3, wherein a relation between said length (ML) of said mark along said track and a diameter (BD) of said laser spot satisfies $ML \leqq BD$, and

a product of said pulse width of said rectangular recording pulse signal and said relative linear velocity is less than 20 % of said diameter (BD) of said laser spot.

24. A method for optically recording information on an optically re-writable information medium as claimed in claim 5, wherein a relation between said length (ML) of said mark along said track and a diameter (BD) of said laser spot satisfies $ML \leqq BD$, and

a product of said pulse width of said rectangular recording pulse signal and said relative linear velocity is less than 20 % of said diameter (BD) of said laser spot.

25. A method for optically recording information on an optically re-writable information medium as claimed in claim 9, wherein a relation

between said length (ML) of said mark along said track and a diameter (BD) of said laser spot satisfies ML $\leqq$ BD, and

a product of said pulse width of said rectangular recording pulse signal and said relative linear velocity is less than 20 % of said diameter (BD) of said laser spot.

26. A method for optically recording information on an optically re-writable information medium as claimed in claim 13, wherein a relation between said length (ML) of said mark along said track and a diameter (BD) of said laser spot satisfies ML $\leqq$ BD, and

a product of said pulse width of said rectangular recording pulse signal and said relative linear velocity is less than 20 % of said diameter (BD) of said laser spot.

27. A method for optically recording information on an optically re-writable information medium as claimed in claim 1, wherein a relation between a length of a minimum mark (MLmin) along said track except when there is no mark and a diameter (BD) of said laser spot satisfies MLmin / BD $\geqq$ 0.10, and

each level of said multi-level signal is assigned so that the level difference between adjacent levels becomes equidistant except when there is no mark.

28. A method for optically recording information on an optically re-writable information medium as claimed in claim 2, wherein a relation between a length of a minimum mark (MLmin) along said track except when there is no mark and a diameter (BD) of said laser spot satisfies MLmin / BD $\geqq$ 0.10, and

each level of said multi-level signal is assigned so that the level difference between adjacent levels becomes equidistant except when

there is no mark.

29. A method for optically recording information on an optically re-writable information medium as claimed in claim 3, wherein a relation between a length of a minimum mark (MLmin) along said track except when there is no mark and a diameter (BD) of said laser spot satisfies MLmin / BD $\geqq$ 0.10, and

each level of said multi-level signal is assigned so that the level difference between adjacent levels becomes equidistant except when there is no mark.

30. A method for optically recording information on an optically re-writable information medium as claimed in claim 5, wherein a relation between a length of a minimum mark (MLmin) along said track except when there is no mark and a

diameter (BD) of said laser spot satisfies MLmin / BD $\geqq$ 0.10, and

each level of said multi-level signal is assigned so that the level difference between adjacent levels becomes equidistant except when there is no mark.

31. A method for optically recording information on an optically re-writable information medium as claimed in claim 9, wherein a relation between a length of a minimum mark (MLmin) along said track except when there is no mark and a diameter (BD) of said laser spot satisfies MLmin / BD $\geqq$ 0.10, and

each level of said multi-level signal is assigned so that the level difference between adjacent levels becomes equidistant except when there is no mark.

32. A method for optically recording information on an optically re-writable information medium as claimed in claim 13, wherein a relation between a length of a minimum mark (MLmin) along said track except when there is no mark and a diameter (BD) of said laser spot satisfies MLmin / BD $\geqq$ 0.10, and

each level of said multi-level signal is assigned so that the level difference between adjacent levels becomes equidistant except when there is no mark.

33. A method for optically recording information on an optically re-writable information medium as claimed in claim 1, wherein

a relation between a length of a maximum mark (MLmax) along said track, except for a mark that has about the same length as a diameter of said laser spot, and a diameter (BD) of said laser spot satisfies MLmax / BD $\leqq$ 0.70, and

each occupied mark ratio of said multi-level signal is assigned so that the difference

between said occupied mark ratios corresponding to adjacent levels of said multi-level signal becomes equidistant except for said mark that has about the same length as said diameter of said laser spot.

34. A method for optically recording information on an optically re-writable information medium as claimed in claim 2, wherein

a relation between a length of a maximum mark (MLmax) along said track, except for a mark that has about the same length as a diameter of said laser spot, and a diameter (BD) of said laser spot satisfies MLmax / BD $\leqq$ 0.70, and

each occupied mark ratio of said multi-level signal is assigned so that the difference between said occupied mark ratios corresponding to adjacent levels of said multi-level signal becomes equidistant except for said mark that has about the same length as said diameter of said laser spot.

35. A method for optically recording information on an optically re-writable information medium as claimed in claim 3, wherein

a relation between a length of a maximum mark (MLmax) along said track, except for a mark that has about the same length as a diameter of said laser spot, and a diameter (BD) of said laser spot satisfies MLmax / BD $\leqq$ 0.70, and

each occupied mark ratio of said multi-level signal is assigned so that the difference between said occupied mark ratios corresponding to adjacent levels of said multi-level signal becomes equidistant except for said mark that has about the same length as said diameter of said laser spot.

36. A method for optically recording information on an optically re-writable information medium as claimed in claim 5, wherein

a relation between a length of a maximum mark (MLmax) along said track, except for a mark that has about the same length as a diameter of said

laser spot, and a diameter (BD) of said laser spot satisfies MLmax / BD $\leqq$ 0.70, and

each occupied mark ratio of said multi-level signal is assigned so that the difference between said occupied mark ratios corresponding to adjacent levels of said multi-level signal becomes equidistant except for said mark that has about the same length as said diameter of said laser spot.

37. A method for optically recording information on an optically re-writable information medium as claimed in claim 9, wherein

a relation between a length of a maximum mark (MLmax) along said track, except for a mark that has about the same length as a diameter of said laser spot, and a diameter (BD) of said laser spot satisfies MLmax / BD $\leqq$ 0.70, and

each occupied mark ratio of said multi-level signal is assigned so that the difference between said occupied mark ratios corresponding to adjacent levels of said multi-level signal becomes equidistant except for said mark that has about the

same length as said diameter of said laser spot.

38. A method for optically recording information on an optically re-writable information medium as claimed in claim 13, wherein

a relation between a length of a maximum mark (MLmax) along said track, except for a mark that has about the same length as a diameter of said laser spot, and a diameter (BD) of said laser spot satisfies MLmax / BD $\leqq$ 0.70, and

each occupied mark ratio of said multi-level signal is assigned so that the difference between said occupied mark ratios corresponding to adjacent levels of said multi-level signal becomes equidistant except for said mark that has about the same length as said diameter of said laser spot.